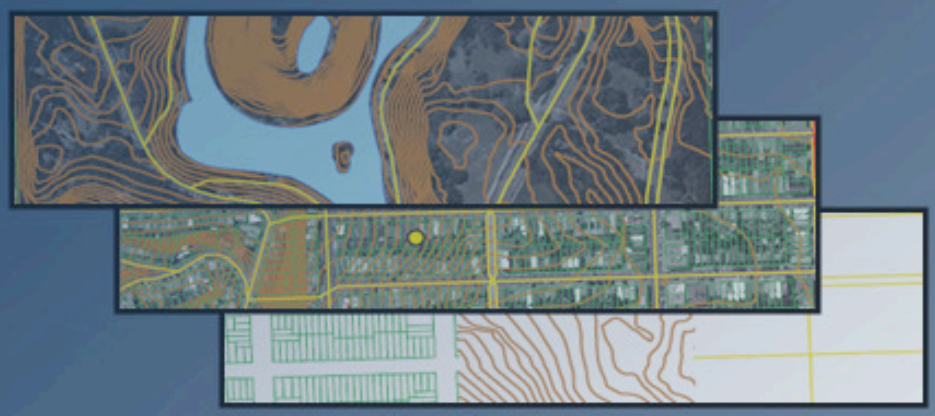
California GIS Strategic Plan Phase 2:

Regional Participation



CREATING A CALIFORNIA SPATIAL DATA INFRASTRUCTURE

April 2008

CGIA
California Geographic Information Association

Baker

California GIS Strategic Plan Phase 2: Regional Participation

Prepared for the California Geographic Information Association
in collaboration with the California GIS Council,
funded by a 2008 CAP Grant from FGDC (Grant No. 07HQAG0038)
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1. Executive Summary

Introduction

The Phase 2 California GIS Strategic Plan is designed to build upon the Phase 1 Plan, published on September 20, 2006. The Phase 1 Strategic Plan identified the vision:

> Creation of a California Spatial Data Infrastructure managed by a central coordinating entity which supports and empowers projects and initiatives using location-based information for improved quality of life for all of California.

At the completion of Phase 1 the need for regional participation was identified. An FGDC Fifty States CAP Grant was applied for and awarded to California to obtain feedback from the sixteen Regional Collaboratives to supplement the Phase 1 volunteer effort.

Michael Baker Jr., Inc. (Baker), working closely with representatives from the California GIS Council (CGC) and the California Geographic information association (CGIA), developed a Regional Collaborative Participation plan to maximize regional participation while working within CAP Grant funding constraints.

Strategic Plan Methodology

Four primary forms of regional participation and data collection were conducted:

Outreach 1. Validation of primary point-of-contact with each Regional Collaborative and updated statewide register.

Outreach 2. An online survey, distributed to each Regional Collaborative. 100% feedback was achieved.

Outreach 3. Regional participation Workshops at seven regional locations. Broad outreach to the California geospatial community resulted in +100 participants that were not previously registered in the CGIA or CGC outreach lists.

Outreach 4. An interactive web forum, designed to further explore concepts gained from the Workshops.

Throughout this project, Baker and CGIA have made the Phase 2 project plan, pre-Workshop survey, workshop reports, post-Workshop web forum activities and findings transparent to the public. All content has been placed on the CGIA web site and will reside there after project completion. [http://www.cgia.org/strategic-gisplanning.htm]

Through all stages of the regional participation project the information collection was oriented around the NSGIC Strategic Planning Template and the four major topic areas in the template intended for Phase 2 focus:

1) Current Situation
2) Requirements,
3) Organizational Needs, and
4) Implementation.

1) Current Situation

During the seven regional Workshops participants provided direct feedback on the perceived strengths, weakness, opportunity, and threats [barriers/constraints] facing California in the development of a Spatial Data Infrastructure. The feedback was generally categorized into the following four topic areas:

1. Communication/Participation
2. Awareness/Education
3. Data Sharing/Data Accuracy
4. Funding

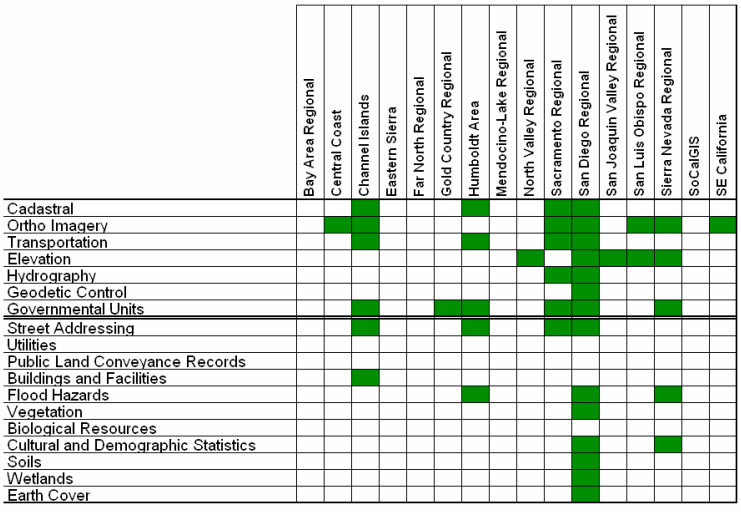
The following table represents the most common observations in each of the topic areas:

Strengths	Weaknesses
▪ Regional Collaboratives: There are a number of active Regional Collaboratives, a few established as non-profits to apply for, receive, and administer grant funding. ▪ Communication / Participation: Several counties have advanced to hire/designate GIOs and are actively engaged in local/ regional/ statewide activities. ▪ Awareness / Education: Talented pool of existing geospatial practitioners and solid California geospatial academic programs to feed the workforce. ▪ Data Sharing / Data Accuracy: CaSIL serves as a good central repository for a small percentage of data that is uploaded. Informal data sharing across communities is strong. ▪ Funding: Several Collaboratives have established funding mechanisms or developed themselves as a 501(c)4.	▪ Regional Collaboratives: There are a number of inactive Regional Collaboratives, within their region or at the state level, which will impede their responsiveness to a request to participate in the development of a CA-SDI. ▪ Communication / Participation: There is inconsistency in communication across and within Regional Collaboratives resulting in a number disconnected framework data development initiatives. ▪ Awareness / Education: There is not enough communication between the producers of geospatial solutions and legislators, executives, and management at the city, county, regional, and state levels. ▪ Data Sharing / Data Accuracy: With no statewide data model there is significant disparity on the quality of data and concern on data sharing liabilities. ▪ Funding: It is difficult to get grants for regional data development because of crossing political/administrative boundaries. There is frequently no one entity to receive and administer grants.

Opportunities	Threats [Barriers / Constraints]
▪ Regional Collaboratives: State representatives from the CGC and CGIA need to interact regularly with all collaboratives to reinforce the established regionals and facilitate development and activity of the less active regionals. ▪ Communication / Participation: The State needs to articulate more clearly what their geospatial business objectives are and how the Regional Collaboratives can assist. ▪ Awareness / Education: Educate elected officials and management on GIS, how GIS is used, and the business value. We need a state designated advocate. ▪ Data Sharing / Data Accuracy: Across the regions there is a general consensus find or create a best practices document on data sharing agreements. ▪ Funding: There are grants and other funding sources available for framework data if the funds can be administered by or for the Regional Collaboratives.	▪ Regional Collaboratives: There are Regional Collaboratives who do not talk among themselves and do not participate in state meetings. ▪ Communication / Participation: Counties often have large departments that are responsible for specific datasets. These departments are not always involved in collaborative efforts. Its takes time to figure out who maintains and updates data and who is responsible for getting it to the next level. ▪ Awareness/Education: The rise of consumer GIS has changed the expectations of users within an agency. This has led to more requirements on the GIS department but not always more funding. ▪ Data Sharing / Data Accuracy: There is often an unwillingness or inability within communities to share information centered around a lack of comfort with the currency and accuracy of data. There is a perceived liability. ▪ Funding: Funding is not sustainable with a consistent lack of recurring funding. Uneasiness of fund grabbing. Sentiment that everyone wants data but no one is willing to fund.

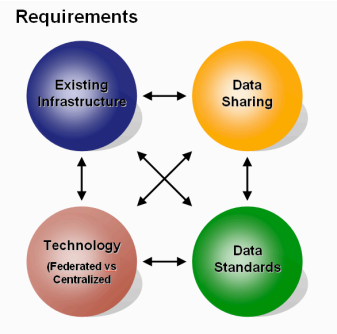
2) Requirements

During the Pre-Workshop Survey, an inventory of existing data sets was collected using the core seven and California-centric eleven data themes prioritized in the "California Geospatial Framework Draft Data Plan". [http://www.cgia.org/geospatial-draftplan.htm] All regional collaboratives responded and the chart to the right depicts their initial feedback.



There was much discussion during the regional outreach workshops centered around the current and potential mechanisms for data sharing. While most Collaboratives responded positively toward data sharing, they still

expressed concern about liability as it relates to data accuracy.



Even with the development of formal policy to encourage data sharing, there is still the challenge of integrating or consolidating datasets that are of different types, accuracy, or have different attributes. There is no set, statewide standard that would allow communities to develop data with some consistency across political boundaries. Without an established standard or quality metadata, information will vary significantly. Regional Collaboratives expressed enthusiasm for a statewide template for standards, assuming the criteria did not affect the current datasets they have already developed. The Collaboratives' greatest concern for development of statewide standards at this point in time is the far reaching effects these changes might have on already existing data models and technology.

An example of a statewide template for framework dataset development is the current Imagery Business Plan and Best Practices Report, prepared under a grant from USGS, administrated by CGIA. For more information, see http://www.cgia.org/imagery-project.htm.

One of the most pressing questions when developing a statewide spatial data infrastructure is the format of the data model. Two options were presented during the Regional Collaborative Workshops to open the topic and gain regional feedback:

- The federated data model - data sets hosted on servers at the regional level but compiled and presented as a statewide dataset through the interface; or
- A central data model - data hosted on servers at a central location.

The workshop participants were oriented to the two models however a more detailed analysis of these approaches are needed in a future strategic planning effort.

3) Organizational Needs

The development of a CA-SDI must work within the organizational structure of the state, regions, and counties. It is essential that there be executive support within both the regions and state for the development of successful and active statewide SDI.

From a regional perspective most Collaboratives (85%) felt the establishment of a GIO was important and believed that GIO should be place in the new office of the State's Chief Information Officer (60%). Even in the absence of a GIO, they felt it was critical for there to be an established, higher level position to administer grants and ensure that resources are delegated to those areas that need them.

While the structure of state level executive support is critical, the Regional Collaboratives felt it was more import that the seven prioritized coordination and oversight roles as surveyed be supported by the Geospatial Information Office or a Geospatial Information Officer:

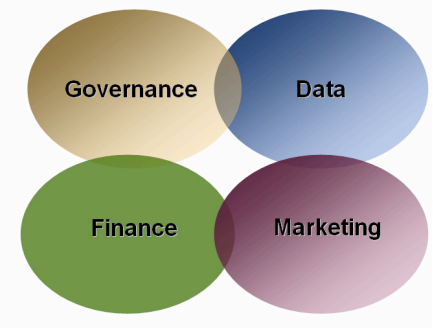
1. Provide leadership in the development and sharing of geospatial data
2. Provide leadership in the development and sharing of geospatial web services and tool
3. Provide leadership in the establishment of GIS technology and data standards
4. Promote best practices for methods and procedures related to the use and development of geospatial data and geographic information systems
5. Coordinate appropriate use of GIS through outreach and networking of potential and expert users
6. Facilitate training for skills related to use and development of geospatial information and geographic information systems
7. Coordinate and administer grants related to geospatial information and geographic information systems

During the Workshop participants added additional areas of support that they seek:

8. Act as Chief Marketing Director and know the client business.
9. Standardize coordinate, and streamline GIS in state agencies.
10. Assimilate local data to a statewide dataset.
11. Coordinate the investment of State Agency dollars.
12. Lobby for funds; stewardship/promotion of GIS.
13. Support of the State GIS Council for data development.

4) Implementation Program

With the NSGIC Strategic Planning template as a guide we have refined the implementation section to better reflect the regional participation feedback that we have categorized into four components:



Each of the components is critical for the development of a CA-SDI. Feedback collected during this phase of the strategic plan provided insight into how the counties envision the CA-SDI moving forward.

Currently, executive support to the California GIS community exists in the form of the California GIS Council (CGC) and the California Geographic Information Association (CGIA). These two organizations are working cooperatively to move California's geospatial community towards a CA-SDI.

Phase 3 of the Strategic Plan will assign action items to each element, and ensure that the requirements are moving forward to meet the needs of a CA-SDI.

Recommendations

Governance

GR1
GR2
GR3

Data

DR1
DR2

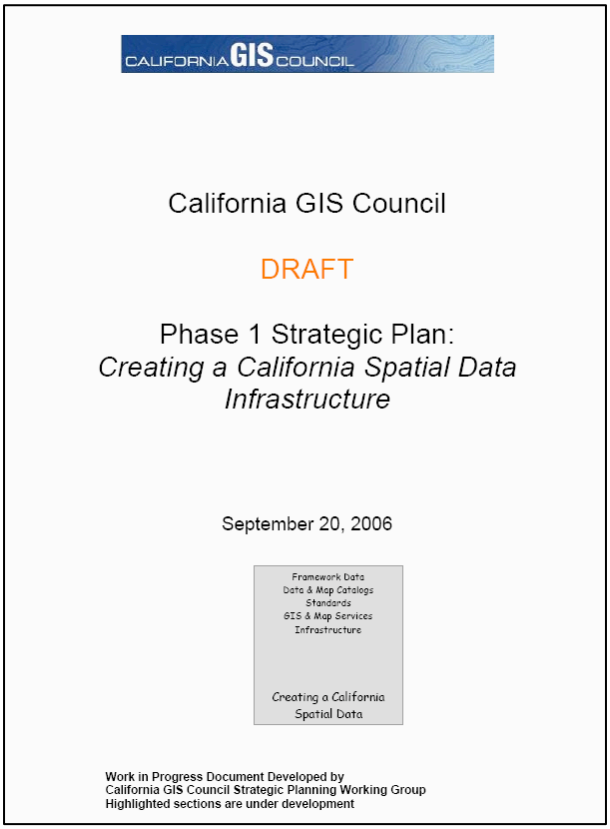
DR3

Finance
- FR1
- FR2
- FR3

Marketing
- MR1
- MR2
- MR3

2. Strategic Planning Methodology

The Phase 2 California GIS Strategic Plan is designed to build upon the Phase 1 Plan, published on September 20, 2006. The Phase 1 Plan was authored by a Strategic Planning Workgroup, composed primarily of volunteers from the California GIS Council and the California geospatial community. Both the original Phase 1 plan and this subsequent Phase 2: Regional Collaborative Participation plan utilize the National States Geographic Information Council's (NSGIC) Fifty States Initiative Strategic Plan Template.



The Phase 2 Plan builds upon the Phase 1 Draft by gathering critical input from California's sixteen Regional GIS Collaboratives and integrating this feedback into a comprehensive CA-SDI (California Spatial Data Infrastructure) Strategic Plan. This second phase began with Michael Baker Jr., Inc. (Baker), the California GIS Council (CGC) and the California Geographic Information Association (CGIA) thoroughly reviewing the Phase 1 document and identifying needs and requirements to move forward.

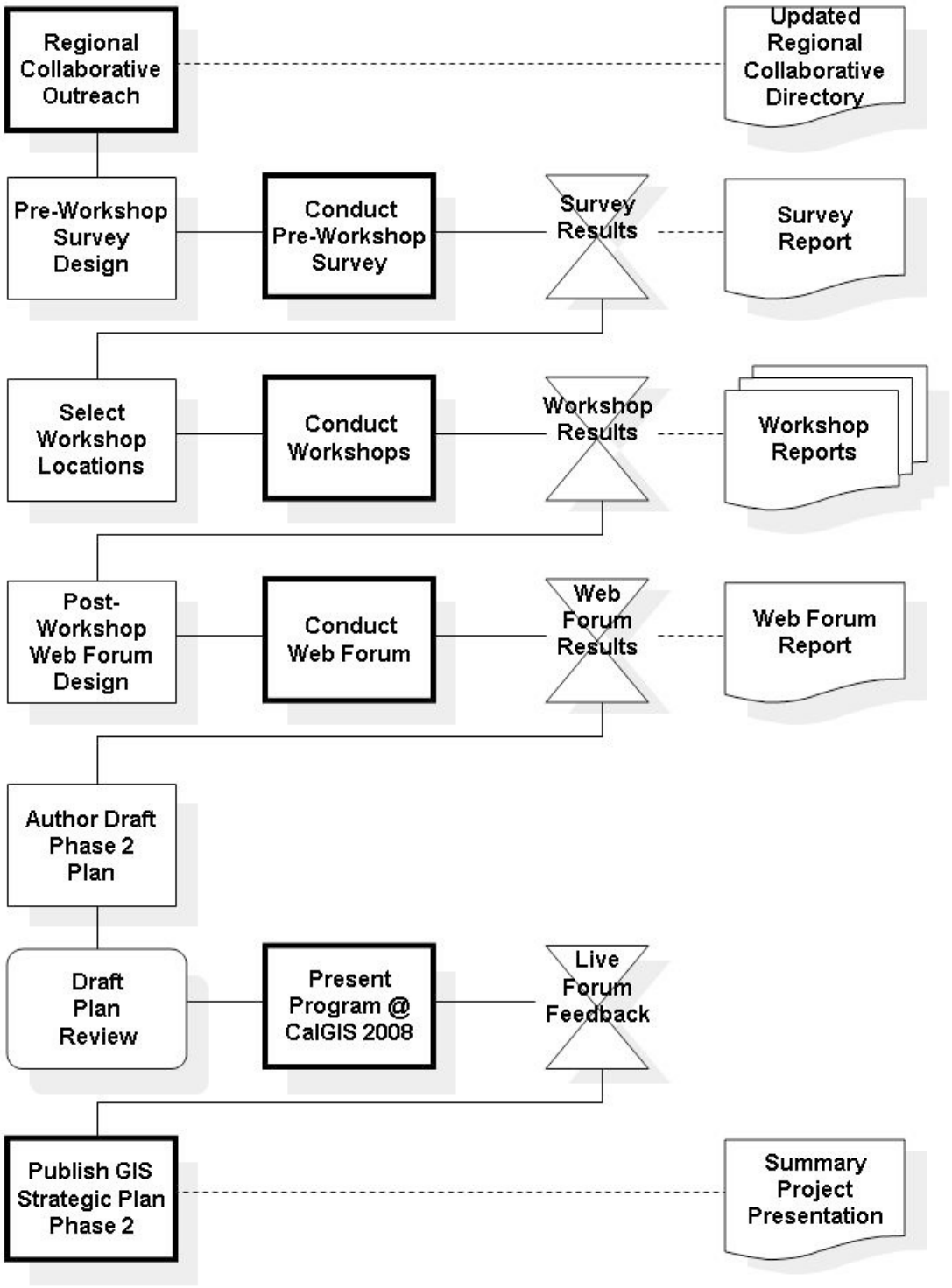
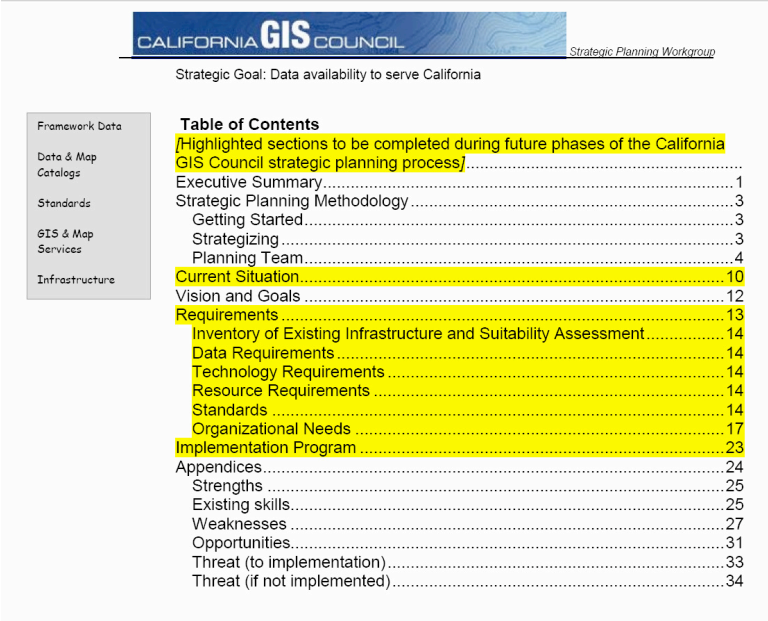


Figure X. Phase 2 Strategic Plan Workflow

2.1 Preliminary Planning

Baker, working closely with representatives from the CGC and the CGIA, developed a Regional Collaborative Participation plan to maximize regional participation while working within CAP Grant funding constraints. This process began by identifying the current Regional Collaborative representatives and developing an updated contact list now available on the CGIA website. http://www.cgia.org/regional-directory.htm


CALIFORNIA GIS COUNCIL Strategic Planning Workgroup

Strategic Goal: Data availability to serve California

Framework Data
Data & Map Catalogs
Standards
GIS & Map Services
Infrastructure

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After initial communication with each Collaborative, a schedule of seven Regional Collaborative outreach meetings were developed and announced. Workshop locations were chosen to allow for the most inclusive coverage of the California Regional Collaboratives.

Four primary forms of regional participation and data collection were conducted:

Outreach 1. Validation of primary point-of-contact with each Regional Collaborative and update statewide register.

Outreach 2. An online survey, distributed to each Regional Collaborative. 100% feedback was achieved following a series of phone calls.

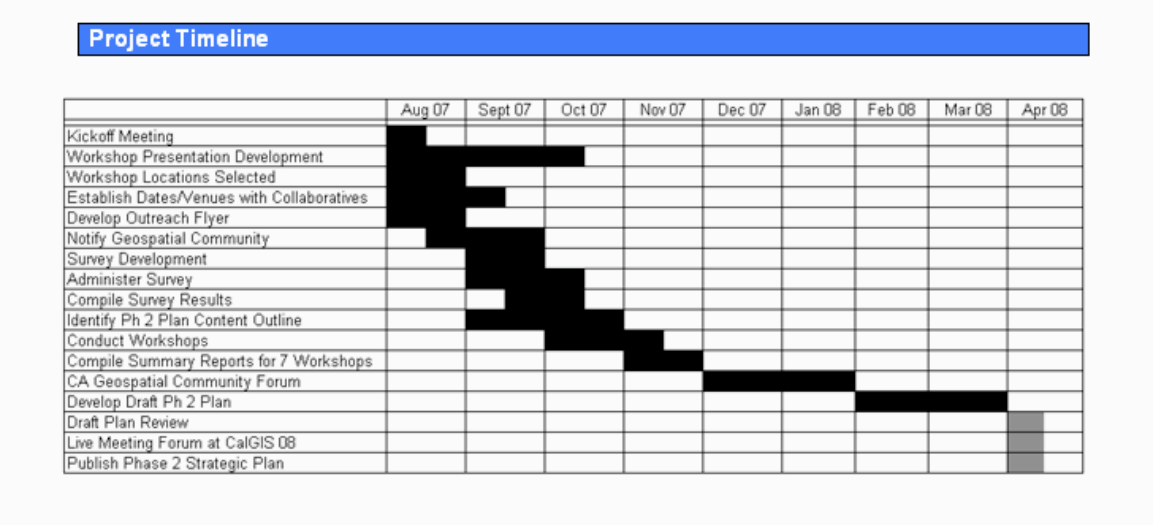
Outreach 3. Regional participation Workshops at seven regional locations. Communities were notified via the CGIA listserv and direct contact with each Regional Collaborative lead

Outreach 4. An interactive web forum, designed to further explore concepts gained from the Workshops.

Each primary form of regional participation was designed to ensure the most appropriate and complete feedback from every Regional Collaborative.

2.2 Strategizing

The establishment of a project timeline ensured that all tasks moved forward and remained on schedule. Project tasks were broken down into seventeen categories (See Figure X). The first project kickoff meeting was held in August, 2007 and Phase 2 of the strategic plan was published April 2008.



In the NSGIC Strategic Plan Template (March 2006), an emphasis is put on coordination amongst stakeholders and external authorities during the development of a statewide SDI (section 5.6.2). Eleven stakeholder groups are identified including, municipal, county, state, tribal and federal regional government agencies (or their equivalents); regional planning organizations, non-profit organizations, utilities, private business, academia, and the public. The seven scheduled regional outreach meetings were designed to include representatives from most, if not all of the eleven stakeholder groups.

Outreach 1: Initial Regional Collaborative Validation
Initially each Regional Collaborative was contacted to verify the primary point-of-contact. The updated information was captured in an updated statewide register.

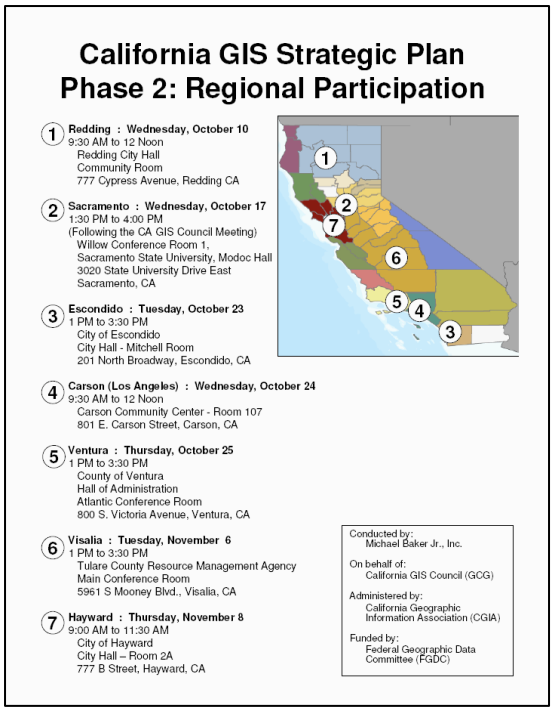
Outreach 2: Pre-Workshop Survey
Prior to the scheduled outreach meeting, basic information was collected in the form of an online survey (see Appendix X). All sixteen Regional Collaboratives were contacted to ensure a 100% response rate. These surveys collected information related to:

1. Regional Organizational Capacity
2. Spatial Data Infrastructure (SDI)
3. SDI Implementation

The results were made available online through the CGIA website (http://www.cgia.org/strategic-gisplanning.htm) and during the outreach Workshops.

Outreach 3: Workshops

The coordination and scheduling of the outreach Workshops was done with the help of a representative from each of the nearby Regional Collaboratives. An informational handout and flyer with the schedule and location of the meetings was distributed statewide. Meetings were also announced via a CGIA listserv. Attendance at every meeting was strong, ranging from ten participants in Ventura to 29 participants in Sacramento. Representation ranged from local government to private industry. Following each workshop, a workshop summary report was published on the CGIA website.



California GIS Strategic Plan
Phase 2: Regional Participation

1. **Redding : Wednesday, October 10**
9:30 AM to 12 Noon
Redding City Hall
Community Room
777 Cypress Avenue, Redding CA

2. **Sacramento : Wednesday, October 17**
1:30 PM to 4:00 PM
(Following the CA GIS Council Meeting)
Willow Conference Room 1,
Sacramento State University, Modoc Hall
3020 State University Drive East
Sacramento, CA

3. **Escondido : Tuesday, October 23**
1 PM to 3:30 PM
City of Escondido
City Hall - Mitchell Room
201 North Broadway, Escondido, CA

4. **Carson (Los Angeles) : Wednesday, October 24**
9:30 AM to 12 Noon
Carson Community Center - Room 107
801 E. Carson Street, Carson, CA

5. **Ventura : Thursday, October 25**
1 PM to 3:30 PM
County of Ventura
Hall of Administration
Atlantic Conference Room
800 S. Victoria Avenue, Ventura, CA

6. **Visalia : Tuesday, November 6**
1 PM to 3:30 PM
Tulare County Resource Management Agency
Main Conference Room
5961 S Mooney Blvd., Visalia, CA

7. **Hayward : Thursday, November 8**
9:00 AM to 11:30 AM
City of Hayward
City Hall – Room 2A
777 B Street, Hayward, CA

Conducted by:
Michael Baker Jr., Inc.

On behalf of:
California GIS Council (GCG)

Administered by:
California Geographic Information Association (CGIA)

Funded by:
Federal Geographic Data Committee (FGDC)

Outreach 4:
Post-Workshop Web Forum

At the completion of the seven workshops, an interactive web forum was made available to solicit additional feedback, clarification, or opinions. Questions were structured around the three themes outlined earlier:

1. Regional Organizational Capacity
2. Spatial Data Infrastructure (SDI)
3. SDI Implementation

All of this content has been used to develop this Phase 2 Strategic Plan.

2.3 Authoring

Baker, working in cooperation with CGIA has prepared and analyzed the results of the pre-workshop survey, workshop interaction, and the post workshop web forum. Accompanying reports include a Pre-Workshop Survey Analysis Report and seven workshop summary reports. These reports have been made available to the public on the CGIA Website (http://www.cgia.org/strategic-gisplanning.htm). Community stakeholders have provided regular feedback during the data collection and report development process. This feedback has provided much of the content for this report.

2.4 Monitoring

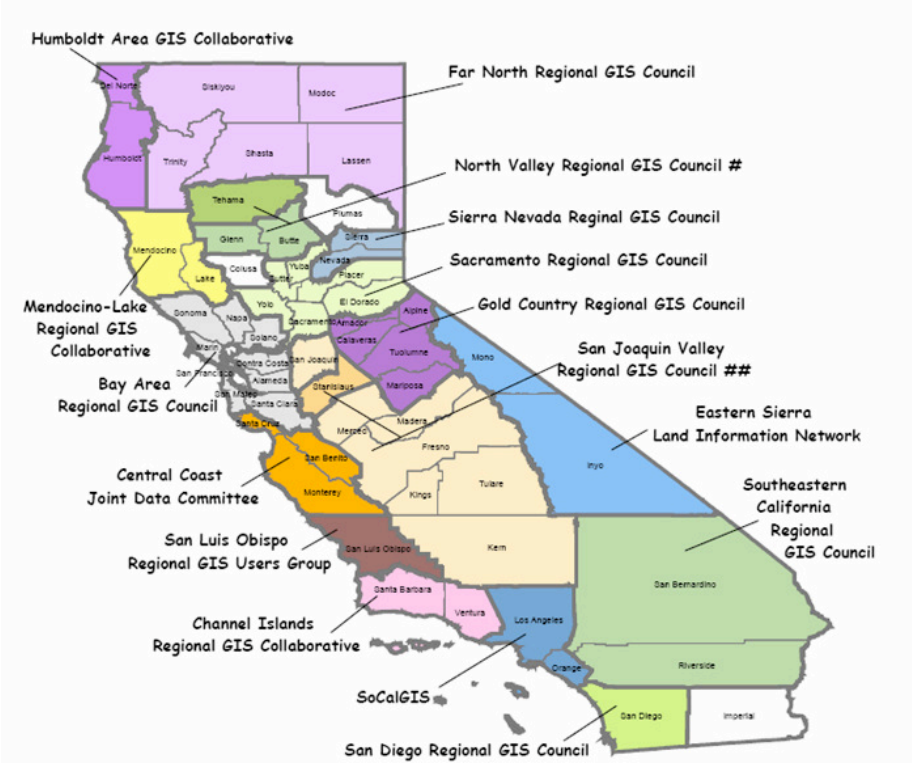
Throughout this project, Baker and CGIA have made the Phase 2 project plan, pre-Workshop survey, workshop reports, post-Workshop web forum activities and findings transparent to the public. All content has been placed on the CGIA web site and will reside there after project completion. Regular feedback has been sought from involved stakeholders, and an effort has been made to solicit information from each of the sixteen Regional Collaboratives.

At the completion of the Phase 1 Plan, and during Phase 2 Regional Participation, it was anticipated that the Phase 3 Strategic Plan will focus on state and federal agency stakeholder support and feedback. The third phase concept requires additional discussion action in order to apply for a Federal Geographic Data Committee (FGDC) Cooperative Agreement Program (CAP) Grant in 2009. The Phase 1 and 2 planning initiatives will be utilized in the development of Phase 3.

3. Current Situation

3.1 Who are we?

Organizational Structure



The size and diversity of California contribute to the many challenges associated with the coordination, development and use of geospatial information. In an effort to overcome these challenges, California has defined a comprehensive network of Regional GIS Collaborative groups. These groups have taken the lead in establishing methods and standards for sharing framework geographic information across typical administrative boundaries. These regional groups serve as a model for further integration and coordination at the State level, providing an excellent opportunity to develop and evaluate best practices.

The level of development of each Collaborative can range dramatically from almost no organizational structure, to a well developed organization with goals, regular meetings, and established funding mechanisms. At least one of the Regional Collaboratives has created a mechanism to receive funding as a 501©4 tax exempt organization, while others rarely meet or communicate at all. The level of organization and communication is most often directly proportional to the amount of activity and productivity.

Because of the large size and complexity of California as a state, it has been dependent upon the Regional Collaboratives and grassroots efforts to develop reliable data. Currently there is no state level central entity to govern GIS and spatial data infrastructure development, so much of the work has come from bottom up efforts.

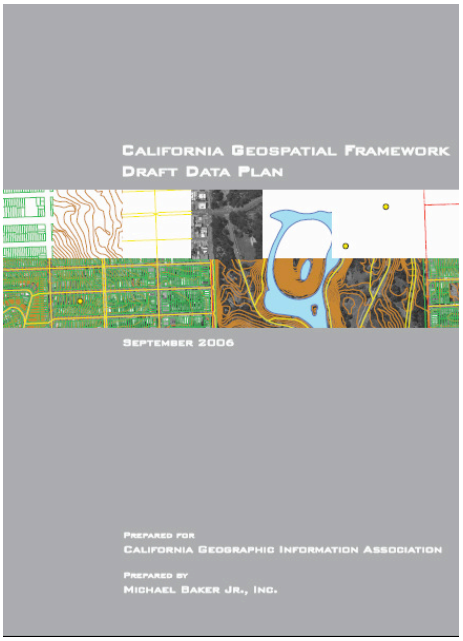
On the state level, California has two primary statewide GIS coordination organizations, the California GIS Council (CGC) and the California Geographic Information Association (CGIA), that work together in mutual support toward common goals and objectives. The CGC provides leadership for increased coordination and is driving the strategic planning process for a Statewide Spatial Data Infrastructure that will support the National Spatial Data Infrastructure efforts. The CGC is a collaboration of federal, state, regional, and academic GIS entities, that guides policy strategy for GIS data and services in California. CGIA is a private non-profit entity facilitating coordination, collaboration,

and advocacy for California's GIS community. CGIA's activities have included coordinating implementation of statewide grants and outreach to disparate communities, including GIS and managerial, executive, and legislative organizations.

California's sixteen Regional GIS Collaboratives interact with the state through representation on CGC. The Regional Collaboratives provide leadership for geospatial coordination in California through their organizational entities and individual members. These members represent the many business needs for coordinated geospatial information in the state.

Stakeholders and Interests

California has a strong community of geospatial professionals who are actively involved in the strategic planning process. Representatives from all levels of government, academia, and the private sectors were present at the outreach meetings. During these workshops it was continually emphasized that the need and benefit of GIS reaches beyond geospatial professionals and touches a range of departments and agencies throughout the state.



Stakeholders are involved in a range of services that require quality geospatial data. Regional feedback confirmed that government agencies require GIS in many areas and for many purposes, including the following examples:

- Guarding against terrorism and criminal activities
- Emergency preparedness and response
- Planning strategic growth (e.g., San Joaquin Partnership)
- Planning and operating critical infrastructure
- Mitigating the affects of global warming (e.g., Delta Vision)
- Sustainable management of our natural resources
- Restoring and ensuring environmental quality
- Pandemic detection and response

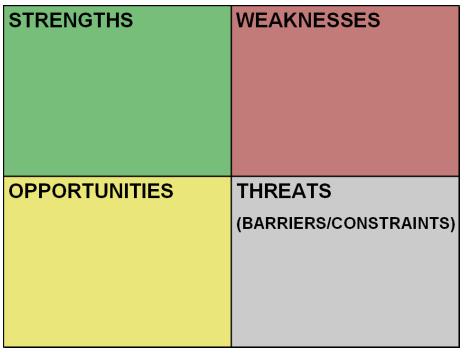
3.2 Where Are We Now?

The CA-SDI Strategic Planning Process

The goal of the CA-SDI Strategic Planning process is the development of a robust and efficient spatial data infrastructure that provides quality geospatial information, ultimately improving the quality of life for all Californians. The process began with the development of a strategic planning work group in April 2006. The outcome of this process was the Phase 1 California Strategic Plan which focused on the development of a California Spatial Data Infrastructure (CA-SDI). The Phase 1 Plan was a "work in

progress" that framed the strategic planning effort and generated a methodology to begin the dialogue with representatives from state, federal, regional, and private sector groups and individuals.

In a common timeframe to the California Strategic Plan Phase 1, the state of California published a Statewide "Geospatial Framework Data Draft Plan." This Plan, funded by a CAP grant and USGS funds, prioritized seven core and eleven supplemental framework data sets following a series of regional workshops and outreach.



In each of the seven Workshops, attendees participated in a Strength/ Weakness/Opportunity / Threat [Barrier/Constraint] (SWOT) analysis. Each Collaborative identified areas where they have excelled, and areas where there is room to grow. There was significant overlap across workshops, with many comments repeated throughout the series of meetings. Below is an outline of the most common comments made by Regional Collaboratives.

3.3 Strengths, Weaknesses, Opportunities and Threats [Barriers/Constraints]

COMMUNICATION / PARTICIPATION

Strengths

- The GIS community has Strength in numbers. There is broad reaching representation from county, city, state, and federal.
- There was statewide participation in the development of Regional Collaboratives.
- Several counties have advanced to hire/designate GIOs.

Weaknesses

- There is inconsistency in communication across and within Regional Collaboratives.
- A number of disconnected data development initiatives.
- It is hard to determine the GIS representative for an area, and there is not always a representative or direct contact with the State.
- There is no clear communication regarding what the state wants from local governments.
- Regionals are not all inclusive; there is not a full California coverage.
- There are no incentives for regions to participate at state level.

Opportunities

- The State needs to articulate more clearly what their geospatial business objectives are and how the Regional Collaboratives data would help meet a given need. The Collaboratives could then respond and provide feedback.
- Regional Collaboratives conduct goal-oriented meetings with the state government that would advance both interests. This is best pursued by CA GIS Council and CGIA.
- Regional Collaboratives confirmed that they would participate in collaboration efforts if someone else assumed the organizational role.

Threats (Barriers / Constraints)

- Counties often have large departments that are responsible for specific datasets. These departments are not always involved in collaborative efforts. Its takes time to figure out who maintains and updates data and who is responsible for getting it to the next level.

AWARENESS / EDUCATION

Strengths

- California has the largest investment in GIS of any state and the majority of local governments are adopting this technology.
- Google and GPS have advanced the public's perception of GIS.
- There are many well established GIS staff working locally and regionally.
- Many local colleges have good GIS educational programs.

Weaknesses

- There is not enough communication between the GIS professional community and academia.
- There is not enough communication between the producers of geospatial solutions and legislators - at the city, county, regional, and state levels.
- There is not enough communication between the producers of geospatial solutions and executives and mangers.

Opportunities

- The opportunity exists to educate elected officials and management on GIS, how GIS is used, and the business value.
- There is a need for someone at the top to advocate GIS and all of its benefits.
- There is a UCSB campus GIS program that is highly regarded but does not have much interaction outside of the school.
- There is a need for a website to publicize geospatial information related to both CA and the regions.
- There is an opportunity to promote GIS awareness among funders. Currently, funders see this technology as something extra and not a critical element to the advancement of each department.

Threats (Barriers / Constraints)

- There exists an "organizational or public ignorance" of the capabilities of GIS.
- Staff retirement has become a threat. Large portions of the workforce are reaching retirement age and staff retention can be a challenge.
- The rise of consumer GIS has changed the expectations of users within an agency. This has led to more requirements on the GIS department but not always more funding.

DATA SHARING / DATA ACCURACY

Strengths

- There are many data development efforts in place statewide.
- Informal data sharing across communities is strong.
- There is a central repository, CaSIL, that makes data accessible.

Weaknesses

- There is concern about a lack of data quality and consistent standards.
- There is confusion and a lack of information regarding liability and data sharing.
- CaSIL data is often old, not accurate, or not detailed enough.
- Many communities communicate but have no formal data sharing agreements.
- Regional data sharing collaboration is difficult because the data attributes are not standardized and the fields don't match. It is hard to integrate the data.
- There are no statewide data models.
- Currently no identified process or target location for the data.

Opportunities

- Across the regions there is a desire to find or create a best practices document on data sharing agreements. This information often is lost when people leave an organization.
- There is a need to move forward and create an information management system. Organizations must worry less about accuracy and, by accepting a more fluid base standard, efforts can move forward.
- The counties would like a master address database. There is currently not one database that has all valid addresses in a jurisdiction.
- There is a need for a central library of available framework datasets. It is difficult for people to find datasets in their most current form.

Threats (Barriers / Constraints)

- There is often an unwillingness or inability within communities to share information. This unwillingness is centered around a lack of comfort with the currency and accuracy of data. There is a perceived liability.
- Many critical datasets are created at the local level. Filtering them up to the state could/will be a challenge due to inconsistencies.
- Licensing agreements are often written in a way that targets private entities.
- There are a lot of legal issues with informal data sharing that people are not always aware of.
- Any time you create a common data set that is shared through a public portal such as Google, there is a possibility that people will degrade the accuracy. There need to be rules of how this resource is maintained and who contributes.
- There is no state standard to build upon.

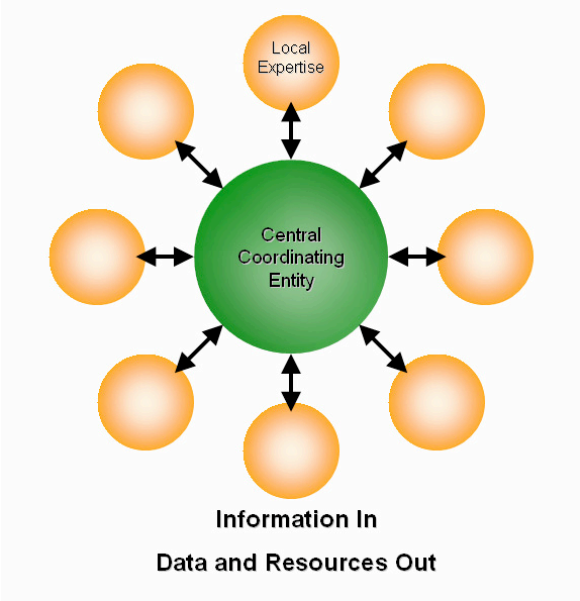
FUNDING

Strengths	Weaknesses
• Several Collaboratives have established funding mechanisms or developed themselves as a 501(c)4.	• Funding and resources are an issue in almost every region. • The ability to leverage federal funding needs to be improved. • It is difficult to get grants for regional data development because of the boundaries. There is no grant entity, so they can't receive and administer grants.
Opportunities	**Threats (Barriers / Constraints)**
• There are financial resources and grants available if a mechanism can be determined. • At least one county's goal is to be financially self sufficient. Ventura hopes to act and operate like a business, and look for opportunities for revenue generation and sharing of costs.	• Funding is not sustainable. Consistent lack of recurring funding year-to-year. • Money is the best incentive but some but there is the question of where the money will come from and where it will go. • There is very limited funding for regional efforts. Responsibility typically falls on the local governments. Everybody needs the data but nobody can pay. • Funding is going to require a lobbying effort at a state level. However, there's a perception that lobbying is not a good activity for government employees.

4. Vision and Goals

4.1 Strategic Goals

The vision of this plan, as defined in the Phase 1 GIS Strategic Plan, is to develop a robust California Spatial Data Infrastructure managed by a central coordinating entity which supports and empowers projects and initiatives using location-based information for improved quality of life for all of California.



This Phase 2 process builds upon the Phase 1 Draft by gathering critical input from California's sixteen Regional GIS Collaboratives and integrating this feedback into a comprehensive CA-SDI Strategic Plan. The second phase moves the Strategic Plan closer towards those goals laid out in the first Phase, specifically "to empower all levels of government to better meet citizen needs." Phase 2 also emphasizes creating a strong nexus between building the framework data set outlined in the California Geospatial Framework Draft Data Plan.

Need to make a connection in the vision statement to framework data. (This sentence represents one way to do this; modify sentence as appropriate.) Also link sentence to diagram and explanation shown in section 5.1 on framework data

Regional feedback collected during this process builds upon the initial goals set forth in the Phase 1 Strategic Plan. These goals include:

1. Development of the California Spatial Data Infrastructure (CA-SDI) – a shared data resource that will make the state's best cartographic data readily available to state agencies, municipal and county governments, federal partners and the private sector.
2. Establishment of a central coordinating entity to provide location-based (geospatial) data services to state agencies, municipal and county governments, federal partners and the private sector.

3. Broader expansion of Regional Collaborative groups and a broader inclusion of these regional groups into the planning, development, and implementation of this strategic plan.

Together, the overall vision of these initiatives will overcome existing vulnerabilities and support new services, providing significant value to a wide variety of stakeholders. It will ensure the inclusion of regional and local entities in the planning and development process. This enhanced statewide geospatial coordination in combination with the new shared data resource will allow California to leverage its significant existing investments. California can then deploy geospatial technology and data to support its many critical functions in the service of its populace and environment, including homeland security, emergency planning and response, smart growth, pandemic influenza surveillance, resource protection and environmental management.

4.2 Programmatic Goals

Moving forward towards a statewide Spatial Data Infrastructure, it is important to involve and learn from regional entities that have insight and resources to move the process along. A California SDI can benefit from Regional GIS Collaboratives that already have highly developed GIS regional services, data sharing agreements; data development plans, framework data, and shared purchases of imagery and other data. Structurally, some of these Collaboratives are 501(c)(4) organizations or official task committees of regional associations of governments, with the ability to receive and spend funds for GIS coordination in their areas. Some regions are past CAP grant recipients, many have full data sharing agreements, and one regional council (the Bay Area GIS Council) was the initial pilot project for the National Geospatial-Intelligence Agency Project Homeland effort. During the development of this Phase 2 Strategic Plan, and the ongoing process of developing a statewide SDI it is critical to continue the integration and communication process with these Regional Collaboratives.

Components of the California Spatial Data Infrastructure should include:

- Spatial Data Infrastructure core framework data
- Spatial Data Infrastructure California-centric framework data
- A central catalog of available data (metadata catalog)
- A data repository (either a centric or federated data model)
- Data administration, security, and upkeep/maintenance services

This Plan also addresses the option of a central coordinating entity (e.g. the Geospatial Information Office) The GIO would provide location-based (geospatial) data services to State projects and programs.

- Coordinate efficient data development and acquisition
- Facilitate data sharing through a Shared Data Resource
- Provide tools and services needed for the CSDI
- Formulate and promote geodata standards

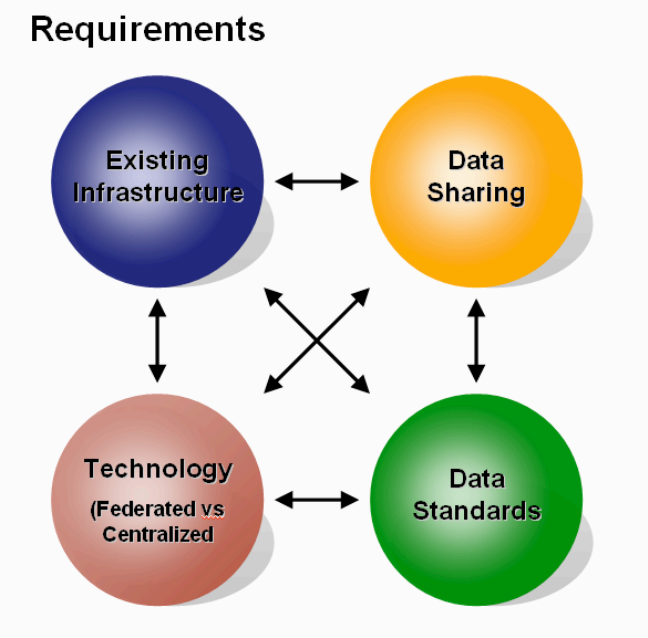
- Develop CSDI methods and procedures
- Provide or organize training
- Coordinate the application for and administration of grants to promote CSDI development and operation
- Provide a locus for spending authority (to receive, spend and move funds for CSDI development and operation)
- Marshal support for GIS coordination as a line item in the State budget

5. Requirements

There are several fundamental requirements for the implementation of a CA-SDI. These requirements, when developed in close coordination with clear direction, will allow local and regional data to be compiled and presented to the public in a seamless manner. The requirements, outlined below, include:

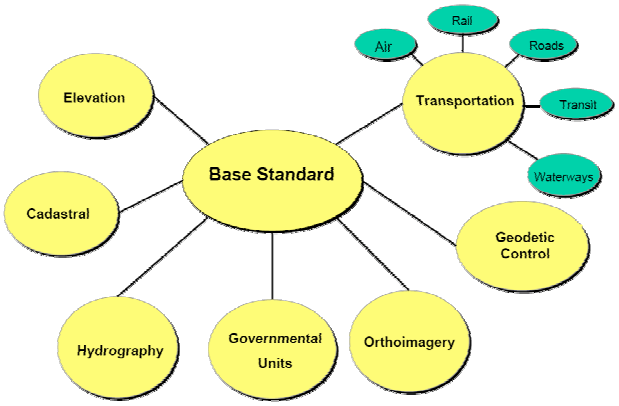
- An appropriate data model (federated or centrally designed) that will host and maintain the necessary data;
- Proper legislation and a mechanism for data sharing across communities, counties, and regions; and
- Statewide data standards that allow local and regional data to roll up into one, consistent and seamless dataset.

These requirements are interdependent of each other, and must be developed in close coordination. Data sharing is dependent on a statewide data standard. Likewise, a data hosting structure is insufficient in the absence of a data sharing mechanism.



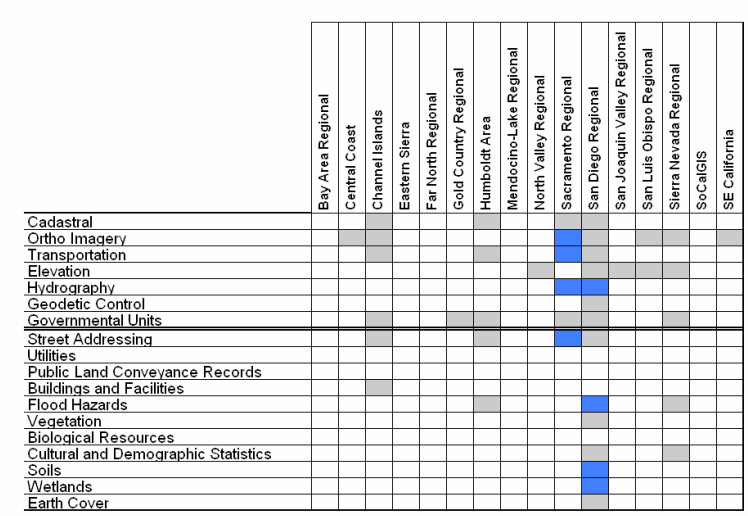
The sections below outline the regional perspective on these requirements gained directly from the pre-workshop survey and the seven regional workshops.

5.1 Inventory of Existing Infrastructure and Suitability Assessment



During the pre-workshop survey, an inventory of existing data sets was collected using the core seven and California-centric eleven data themes prioritized in the "California Geospatial Framework Draft Data Plan". Each of the sixteen Regional Collaboratives was asked to provide feedback on the datasets they have produced or acquired. These results are best summarized in a table (see Table X). San Diego Regional Collaborative had the most datasets available (all 7 core, and 7 of the 11 California-centric) and ortho imagery was the most widely available data with 7 of the Collaboratives identifying this dataset.

	Bay Area Regional	Central Coast	Channel Islands	Eastern Sierra	Far North Regional	Gold Country Regional	Humboldt Area	Mendocino-Lake Regional	North Valley Regional	Sacramento Regional	San Diego Regional	San Joaquin Valley Regional	San Luis Obispo Regional	Sierra Nevada Regional	SoCalGIS	SE California
Cadastral			■				■			■	■					
Ortho Imagery		■	■							■	■		■	■		■
Transportation			■				■			■	■					
Elevation									■		■	■	■	■		
Hydrography										■	■					
Geodetic Control											■					
Governmental Units			■			■	■			■	■			■		
Street Addressing			■				■			■	■					
Utilities																
Public Land Conveyance Records																
Buildings and Facilities			■													
Flood Hazards							■				■			■		
Vegetation											■					
Biological Resources																
Cultural and Demographic Statistics											■			■		
Soils											■					
Wetlands											■					
Earth Cover											■					



Each Collaborative was then asked if any of the available datasets met standards (see Table 2). Only Sacramento and San Diego Regional Collaboratives had datasets that met standards. Additional information was gathered regarding accuracy, currency, and source for the data. Complete results can be found in Appendix X.

5.2 Data Requirements (Data Sharing)

There was much discussion during the regional outreach meetings centered around the current and potential mechanisms for data sharing. The first step toward facilitating data sharing across political boundaries is an improved understanding of current policy and legal ramifications. While most Collaboratives responded positively toward data sharing, they still expressed concern about liability as it relates to data accuracy. Most communities felt challenged because they lack a formal mechanism for data sharing. Many local governments are overcoming their lack of this formal mechanism by creating informal agreements or "arrangements".

Even with the development of formal policy to encourage data sharing, there is still the challenge of integrating or consolidating datasets that are of different types, accuracy, or have different attributes. There is no set, statewide standard that would allow communities to develop data with some consistency across political boundaries. A more thorough discussion of data standards follows below.

Additional challenges arise when efforts expand beyond two or three communities and move towards the development of a regional or statewide integrated dataset. Local governments require data at a finer level of detail than states or regions. This presents challenges when state level data require accuracy or attributes that may differ from already developed local data. Other problems arise when the completeness of data between communities vary.

One example of data sharing at the state level is NC OneMap in North Carolina. This example presents local data that is stitched together at the borders creating the appearance of a cohesive whole. At the private level, Google Earth allows for informal data sharing. Information and data is provided by the public and available to the public. These systems may serve as models during the development of a CA-SDI.

5.3 Technology Requirements (Federated versus Central Data Models)

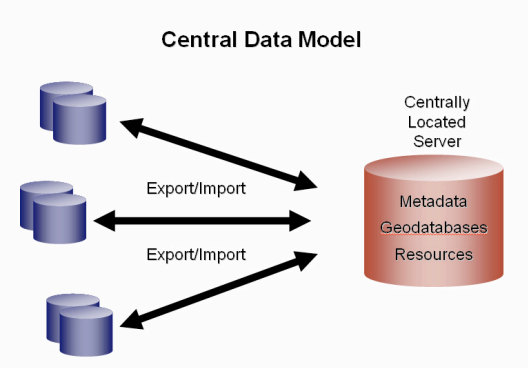
One of the most pressing questions when developing a statewide spatial data infrastructure is the format of the data model. The two options presented during the Regional Collaborative workshops were:

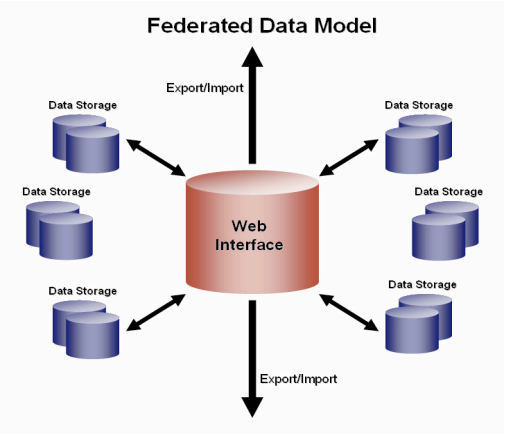
- The federated data model - data sets hosted on servers at the regional level but compiled and presented as a statewide dataset through the interface; or
- A central data model - data hosted on servers at a central location.

There are possibilities and challenges for each model. The lack of statewide standards would have to be addressed for either model to be successful, but the implementation of those standards would likely be effected by the hosting site. Ongoing updates and

maintenance would most likely fall in the hands of the entity responsible for hosting the data. A central data model would allow for consistent updates to data and metadata on a regular schedule by one entity. In this situation, quality control checks would likely be performed on the state level, which would allow for greater consistency across states.

Several Regional Collaboratives questioned the feasibility of a central data model. Many voiced the concern that consolidated data sets housed on one server would cause confusion. State representatives also expressed concern that the IT environment within the state is not appropriate to accommodate a central data model.





Regardless of the chosen data model, the data host will assume a variety of responsibilities, including updating the data and metadata as well as maintaining the server. Funding and resources for these updates must be provided. If the federated data model is implemented, these funds must be distributed in an equitable manner. While some Collaboratives have the local infrastructure in place, others do not. All Collaboratives would also require additional staffing and personnel to perform the appropriate work.

5.4 Data Standards

While Regional Collaboratives expressed a willingness to share data, the real challenge comes with aggregating and storing the data. For data to be rolled together there must be consistency across datasets. Without an established standard or quality metadata, information will vary significantly. If California is to create consistent statewide datasets from individual regional contributions, it is essential that there be statewide standards for data accuracy, currency, attributes and metadata.

Regional Collaboratives expressed enthusiasm for a statewide template for standards, assuming the criteria did not affect the current datasets they have already developed. The Collaboratives' greatest concern for development of statewide standards at this point in time is the far reaching effects these changes might have on already existing technology. Many applications have already been developed that depend on existing datasets. Any changes to the format of the data would effect these applications. There would also be a large cost associated with transitioning from one format to another. It was emphasized

that, if standards are to be created, now is the time because many datasets are still in the developmental stage. The regions also expressed a desire for the state to provide technical tools, resources, and funding to help them adopt standards.

The benefit of statewide standards would be most significant at the state, regional and county levels. Counties and communities often require a finer level of detail and accuracy than state standards will likely provide. Regions will benefit from a state data standard because it will allow data to be interoperable both across and within regions. It is important to note that some regions, such as CIRGIS, have already gone to some effort to develop their own data standard and model.

6. Organizational Needs

The development of a CA-SDI must work within the organizational structure of the state, regions, and counties. The five organizational areas that became apparent after the survey, workshops, and web forum are explored.

6.1 Executive Support

Executive support within both the regions and state is essential for the development of successful and active Regional GIS Collaboratives and the creation and maintenance of a statewide SDI.

On the regional level, Collaboratives must be proactive and take initiative to move projects forward. With proper funding, CGIA can provide support to the Collaboratives and serve a similar role as NSGIC at the federal level. To do this, an organizing entity must be in place to keep projects on task, funded, and productive. Feedback across the board showed that most Collaboratives are currently operating reactively. Executive support within the regions varied widely. Responses to the pre-workshop survey showed that there is an even, three way split across Collaboratives- one third occasionally receive strong executive support, one third often do, and one third seldom do. Los Angeles County has a very successful model, with a GIO position in place. This position was established as a result of an assessment and evaluation that justified the need for the position. Ultimately, this need was determined because much of the County's GIS was not coordinated across departments. This example should serve as a model for other regions and the state.

On the state level, most Collaboratives (85%) felt the establishment of a GIO was important and believed that GIO should be place in the new office of the State's Chief Information Officer (60%). Even in the absence of a GIO, they felt it was critical for there to be an established, higher level position to administer grants and ensure that resources are delegated to those areas that need them.

In the absence of a GIO, the Collaboratives indicated that there should be a governor authorized or legislated council that has authority in the field with state agencies. Without state level executive support, much of the responsibility falls to CGIA and the Regional Collaboratives. This is not in the best interest of the state. The Regional Collaboratives will always prioritize the interests of the region, not the state. For the state to develop and benefit from a statewide SDI, they need to provide the necessary resources and executive support from the top down. In the absence of strong executive support the system is need

driven. While this may be successful in the short term, ultimately a long term vision is necessary.

6.2 Coordination and Oversight Procedures

While the structure of state level executive support is critical, the Regional Collaboratives felt it was more import that the following seven roles be filled, listed in order of priority:

1. Provide leadership in the development and sharing of geospatial data
2. Provide leadership in the development and sharing of geospatial web services and tool
3. Provide leadership in the establishment of GIS technology and data standards
4. Promote best practices for methods and procedures related to the use and development of geospatial data and geographic information systems
5. Coordinate appropriate use of GIS through outreach and networking of potential and expert users
6. Facilitate training for skills related to use and development of geospatial information and geographic information systems
7. Coordinate and administer grants related to geospatial information and geographic information systems

A GIO team may be necessary for these roles to be filled.

The regions consistently expressed that the state must do a better job planning, coordinating and expressing their needs to the regions and counties. If the state needs regional data, then the state must develop a strategy for how the communities and counties can feed this data to them. The state must create data standards and a template for guidance and the state must communicate their needs and desires. It should also be the responsibility of the state to run quality control checks on submitted data and metadata to ensure that all of the elements are there and the data remains stable.

In addition to the roles listed above, additional support from the state may include:

- Hosting data similar to CALSIL.
- Acting as an authoritative verifier of value and quality of data.
- Confirm that data meets a certain standard through metadata.
- Initiating meetings of agencies at similar levels
- Provide a “state seal of approval.” This is low cost and provides tremendous value at the local level and can encourage maintenance of good data sets.
- Provide funding for regions to develop data repositories.
- Provide architecture that allows local government to view data at a regional level.
- Provide a Service Oriented Architecture (SOA)

The Regional Collaboratives also emphasized that the state must offer as much value to the regions or counties as the regions or counties offer to the state. It is important for the state to offer support through funding and resource. Otherwise any oversight or guidance could be viewed as an unfunded mandate. The counties main responsibility is ultimately

to the taxpayers in their area, not regional or state initiatives, so incentive must be in place to compensate the counties for their time and effort.

Ultimately, for a CA-SDI to be successful, the state must not only communicate and provide resources to the regions, but they must also demonstrate progress towards their stated goal. By facilitating collaboration and regularly moving towards the next steps, all stakeholders and involved entities will stay motivated and on track.

6.3 Staffing

Qualified staff, who can be assigned a portion of their time to data building and maintenance, are a critical element in the implementation of a CA-SDI. Regional Collaboratives expressed concern over their ability to retain qualified and skilled personnel. In the pre-workshop survey only 50% of the Regional Collaboratives said they had personnel available to support regional GIS efforts. During the regional workshops, Collaboratives and local governments also discussed the challenges of hiring and retaining the appropriate personnel. Much of the work force will be retiring over the next few years, so local governments will lose much of the long time expertise they have had. New hires often have skills in complex programming and application development, but may lack the experience in basic data development or knowledge of the political environment. Resources must become available to hire, pay, and train staff. Ultimately, this comes back to the challenge of funding, and more specifically sustainable funding.

6.4 Budget Requirements

Throughout the outreach process, Regional Collaboratives regularly sited funding as one of their biggest constraints. In the pre-workshop survey 69% of the Collaboratives felt their funding was minimal, and half of them have no funding mechanisms in place. The biggest concerns relating to funding were availability of grants, equity of distribution, and sustainability of funds.

Educational resources that focus on data availability would prove beneficial. Many Collaboratives expressed a desire to apply for federal or state grants, however they are unaware or lack the resources to research such grants. On the state level, it would be beneficial to have one entity apply for statewide grants and make those funds available to the regions. CAP grants are useful, but there is still a need for larger and farther reaching funds. Focusing data development in areas where money is more readily available would help ensure sustained funding. Specifically emergency preparedness and homeland security were identified as having sustained funding available. Datasets such as streets and point addresses, as opposed to parcels, tie more closely to these business areas.

Some regions expressed concern over equity and the distribution of state funds. Regions and counties that have already developed datasets are concerned that they will be compensated less than those areas that still need to develop data. Alternatively, those regions with limited resources and budgets are concerned that funding will continue to go towards the more active regions, where resources are already available. It is important

that a state level entity monitor the distribution of state funds to ensure that money is delegated in an equitable manner.

Finally, all Regional Collaboratives are concerned about the sustainability of funding. Most Collaboratives that do have funding are dependent on one time grants with no guaranteed future funds. Efforts within both the regions and states should focus on establishing long term, guaranteed funding mechanisms to ensure that projects are not interrupted or put on hold when grants run out.

6.5 Outreach and Community Development

Outreach and community development are critical in ensuring that the state communicates with Regional Collaboratives, local government, and policymakers. Regions regularly confirmed that the state needs to more clearly express their needs. More specifically, if the State plans to create standards for data, they must specify and publicize them and provide incentives.

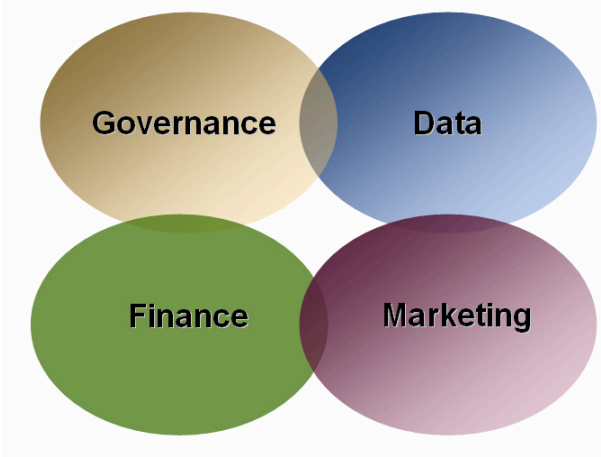
In addition to community and regional GIS departments, outreach should focus on those who will benefit from statewide data. These groups were identified as:

- Small government entities that don't have funding for GIS staff.
- Entities involved in regulatory programs would benefit from improved consistency of datasets.
- Local and regional stakeholders that aren't GIS enabled or experts. They would benefit from a simple mapping tool that supports advocacy and business decisions.
- Emergency services would benefit from regional data that allowed them to see what resources are across the borders of cities, counties, and regions
- Computed Aided Dispatch needs to understand administrative boundaries so they can get information to the right response team.

Publicity and marketing are important in creating enthusiasm for a CA-SDI. Focusing communications on the practical benefits of GIS will help gain political support. If the State or CGC reached out to the development community, they could facilitate an interest in creating functional GIS data.

7. Implementation Program

Feedback collected during this phase of the strategic plan provided insight into how the counties envision the CA-SDI moving forward. Each of the above components was determined critical for the development of a CA-SDI. CGC and CGIA must prioritize each initiative as a short or long term action. Phase 3 of the Strategic Plan should assign action items to each element and identify resource requirements to ensure that the requirements are moving forward to meet the needs of a CA-SDI.



The implementation of the CA-SDI based on this Phase 2 effort has categorized into four components:

7.1 Governance

7.1.1. Executive Support

Currently, executive support to the California GIS community exists in the form of the California GIS Council (CGC) and the California Geographic Information Association (CGIA). These two organizations are working cooperatively to move California's geospatial community towards a CA-SDI.

CGC is made up of representatives from local, tribal, state and federal government agencies as well as the private sector. It was formed for the purpose of collaborating on the planning, implementation and maintenance of a California GIS infrastructure. Phase 1 of the strategic plan was the first step in this process. The Council's ongoing involvement in this process is critical to its long term success.

CGIA is a non-profit, statewide association that was formed in 1994 to facilitate coordination, collaboration, and advocacy for California's GIS community. CGIA has a Board of Directors that represent organizations from nine sectors distributed throughout the state: federal, state, regional, county, city, private, academic, non-profit, and Utility. CGIA promotes the creation and maintenance of the best practices in the governance and application of geographic information within the State of California that can become a model for the nation. CGIA has applied for grants, received funding, and been actively involved in the development of this Phase 2 document.

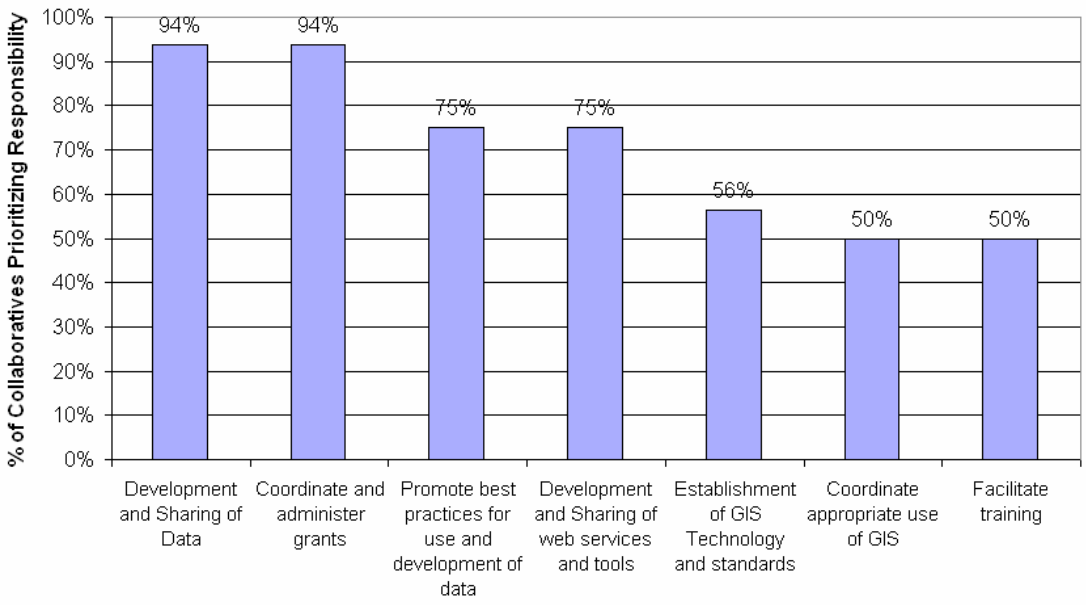
In the absence of a GIO, these two organizations provide executive support to the Regional Collaboratives and counties throughout California. They must continue to work

in cooperation to fulfill the roles and responsibilities outlined below to ensure that California moves in the direction of a CA-SDI.

7.1.2. Coordination and Oversight Procedures

In advance of the on-line survey, the project team identified seven tasks that could potentially be supported by the Geospatial Information Office or a future Geospatial Information Officer. These seven tasks have been ranked according to Regional Collaborative feedback. Listed in order of expressed importance:

1. Providing leadership in the development and sharing of geospatial data;
2. Coordinating and administering grants related to geospatial information and geographic information systems;
3. Promoting best practices for methods and procedures related to the use and development of geospatial data and geographic information systems;
4. Providing leadership in the development and sharing of geospatial web services and tools;
5. Provide leadership in the establishment of GIS technology and data standards;
6. Coordinating appropriate use of GIS through outreach and networking of potential and expert users;
7. Facilitating training for skills related to use and development of geospatial information and geographic information systems.



Feedback from the seven workshops also identified several candidate GIO responsibilities:

8. Act as Chief Marketing Director and know the client business.
9. Standardize coordinate, and streamline GIS in state agencies.
10. Assimilate local data to a statewide dataset.
11. Coordinate the investment of State Agency dollars.
12. Lobby for funds; stewardship/promotion of GIS.
13. Support of the State GIS Council for data development.

The distribution of the tasks should be completed during the Phase 3 Strategic Plan or tactical planning process which will immediately follow the completion of the California Statewide Strategic Plan.

7.1.3. GIO

The establishment of a state level Geospatial Information Office with a Geospatial Information Officer was supported across the regions. Many participants felt a GIO would be necessary to properly fulfill the tasks outlined above.

The concept of a state GIO is not new, and the need for a GIO has been previously documented (http://gis.ca.gov/council/docs/GIS_CPR_Report_Draft_111004_jpe.doc) and promoted. The Phase 2 Strategic Plan regional participation clearly reinforced the need for a statewide coordinating body and/or individual to meet the thirteen responsibilities noted in Section 7.1.2 above.

A sampling of other state level GIO activity follows for further research and consideration:

New York: The NYS GIS Coordinating Body, operating under the auspices of the NYS Office of Cyber Security and Critical Infrastructure Coordination, coordinates, promotes and facilitates the development, effective use, and sharing of geographic information. It also removes barriers to implementing geographic information technology to improve the delivery of public services, protect the public and the environment, and enhance the business climate for the benefit of the State, its municipalities, businesses and citizens. There is an officially recognized Statewide GIS Coordinator who is the Assistant Deputy Director & CIO of the NYS Office of Cyber Security and Critical Infrastructure Coordination. (http://www.nysgis.state.ny.us/)

Texas: The Texas Geographic Information Council is created to provide cost-effective and useful exchange and retrieval of geographic information both within and among the various agencies and branches of government, and from the agencies and branches of state government to the people of Texas and their elected representatives. The State GIS Coordinator resides in the State of Texas, Department of Information Resources. (http://www.dir.state.tx.us/tgic/index.htm)

Arkansas: The Arkansas Geographic Information Office (AGIO) was created to educate the public and to provide information regarding land and mapping data resources to various entities throughout the state. The AGIO coordinates state and federal geospatial data projects across Arkansas. The passage of ACT 751 of 2007 moved the AGIO under the Arkansas Department of Information Systems, which is the operational host of GeoStor, the state's geographic information systems clearinghouse. (http://www.gis.state.ar.us/AGIO_index.htm)

Oregon: The Oregon Geospatial Enterprise Office (GEO) coordinates with government agencies to develop and manage geographic information. It communicates about Geographic Information Systems (GIS) issues with users and guides development of

Oregon's GIS data standards. GEO is also the State's point of contact for other organizations about geographic information and GIS. GEO also hosts the Oregon Geospatial Data Clearinghouse, an electronic library of geographic information. (http://gis.oregon.gov/)

Idaho: Idaho's Geospatial Office's mission is to provide leadership and coordination for the creation and maintenance of statewide base geospatial data (Framework) and overall support to the GIS community. They facilitate the use, development, access, sharing, and management of geospatial data and assist with communicating the value of geospatial information to citizens and decision-makers in the state of Idaho. (http://gis.idaho.gov/)

Georgia: Georgia Case for a GIO

PURPOSE: It is strongly proposed that Georgia establish a GIO (Geospatial Information Officer) as a statewide coordinator whose position would not be affected by political changes, *one* resource in charge of organizing all inventory activities and integrating multiple systems when multi-million dollars are at stake. This person shall have the authority to implement the following necessary actions:

- Require state agencies to provide common access to their electronic maps, aerial imagery, and geographic data and/or associated metadata via the Georgia GIS Clearinghouse to ensure interoperability (with exception to records identified in O.C.G.A. 50-18-72).
- Require local governments to provide common access to their electronic maps, aerial imagery, and geographic data and/or associated metadata via the Georgia GIS Clearinghouse to ensure interoperability, for those initiatives supported by state or federal funding (with exception to records identified in O.C.G.A. 50-18-72).
- Obtain sustained funding for collection, creation, and maintenance of statewide electronic maps, aerial imagery, and geographic data (i.e., human, natural, and man-made assets) that are not already maintained by state agencies.

(http://www.gis.state.ga.us/Coordination/GISCC/Meetings/GIOinGA_v5.pdf)

Governance Recommendations:

GR1: Several counties have budgeted for and hired/designated GIOs. CGIA to collaborate with these counties to understand how they are organized, funded, staffed.

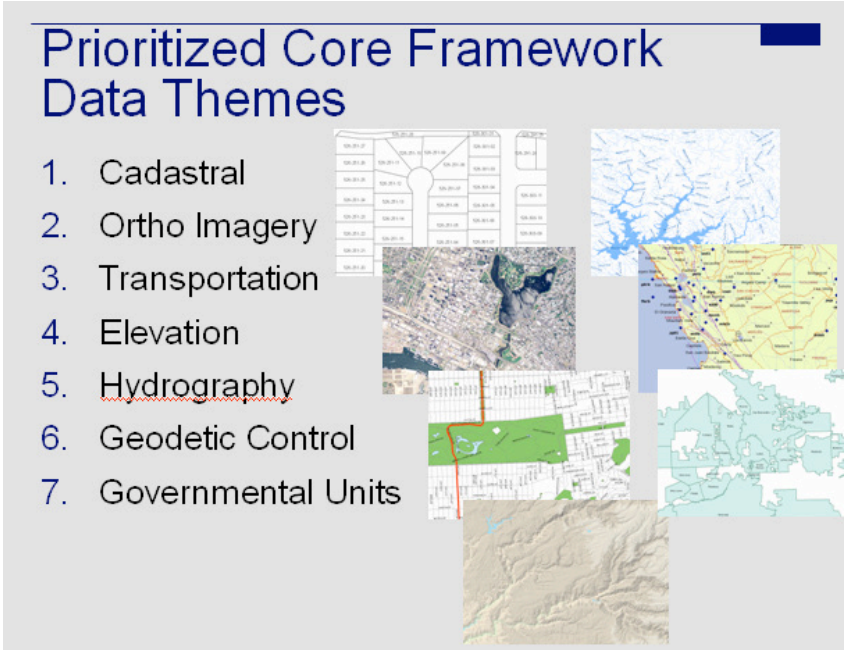
GR2: The State needs to articulate more clearly what their geospatial business objectives are and how the Regional Collaboratives data and support would help meet a given business need. The Collaboratives could then respond and provide feedback.

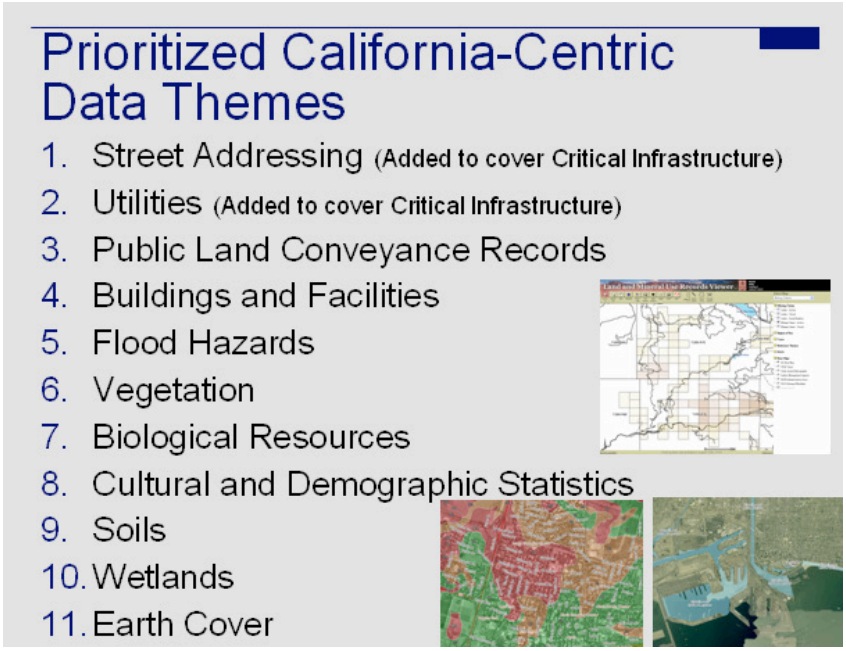
GR3: Regional Collaborative conduct goal-oriented meetings with California GIS Council and CGIA.

7.2 Data

In September 2006, CGIA and Michael Baker Jr., Inc. prepared the "California Geospatial Framework Draft Data Report". This Plan, funded by an FGDC CAP grant

and supplemental USGS funds, prioritized seven core and eleven supplemental framework data sets following a series of regional workshops and outreach. We refer to the prioritized framework data themes as the California Spatial Data Infrastructure (CA-SDI). With this prioritized list in place the forcus of the regional participation was to obtain feedback on technology, standards, sharing, and distribution.





In California, digital imagery has become an essential tool of government at all levels for doing the people's business. According to the "Imagery Business Plan and Best Practices Report," (http://www.cgia.org/imagery-project.htm), the primary benefits of collaborative acquistion of this framework data layer are:

- Improved budget planning and support for agencies' business case for imagery acquisition
- Improved sequencing of acquisition of imagery of different resolutions to provide better coverage over time
- Lower costs through coordination and cost sharing with other acquisition programs to avoid duplication of effort within with other agencies.

The report further outlines guidance on pursuing business planning as a component of success for imagery projects; this guidance also applies in large part to other framework data layers. Finally, the report identifies best practices based on online surveys, interviews, and in-depth workshops with representatives from the same regional groups – often with different stakeholders involved. The intent of the best practices is to improve the opportunities for success in the development of the imagery framework data layer.

7.2.1. Technology

The Phase 3 GIS Strategic Plan must answer the following questions by referencing regional feedback included in this report and state input acquired during the next phase.

- Where should regional data be hosted? Possible solutions include on servers made available to the Regional Collaboratives, at universities or academic institutions, or centrally, at the state level.

- What are the technical needs for the determined setup? In order to answer this, there must first be an evaluation of the resources already available and the needs that are already being met.

- What are the ongoing needs for maintaining this set up? State input must be used to determine who will maintain data and how those resources will be funded.

7.2.2. Standards

While the regions are willing to incorporate statewide data standards, it is important that the state publicize and provide incentives for those standards. More specifically, the regions are willing to implement state standards on data that is still being developed, but transitioning previously developed data to a new format will prove challenging. For these standards to be most effective, it is critical that the state move forward and develop a standardized template while many counties are still developing data. This will maximize the benefit of these standards.

Once the standards are established, it is important that there be communication back to the regions and counties. The state must develop a smooth process that provides funding mechanisms or incentives for the regions to implement the standards. These standards must not appear as an unfunded mandate.

7.2.3. Sharing

Regional Collaboratives have asked for structured guidance from the state on the legal issues with data sharing. Many counties said that if they had a basic understanding of liability regarding data accuracy, they would be more willing to share data. Educational resources developed at the state level would provide this basic understanding.

There is a need for legislature, developed by the state, which would support the sharing of data, specifically among government agencies. There is a need for a standardized mechanism for sharing data between government entities. Currently there is inconsistency of how data is shared, whether it is free across departments and agencies, and how it is compiled.

7.2.4. Distribution

Storage and distribution of statewide data may be designed using either a federated or central data model (defined earlier). The following examples of each system may be used as a model for California's SDI.

Federated Data Model Examples

RAMONA- produced by the National States' Geographic Information Council (NSGIC) as a tool for states and their partners. Its primary purpose is to track the status of GIS in US state and local government to aid the planning and building of Spatial Data Infrastructures. Ramona is designed to work in concert with Geospatial One Stop. (http://ca.gisinventory.net/)

NC OneMap - a public service providing comprehensive discovery and access to North Carolina's geospatial data resources. It is an organized effort of numerous partners throughout North Carolina, involving local, state, and federal government agencies, the private sector and academia. It is the geospatial backbone supporting North Carolina data users. NC OneMap is the State Clearinghouse for geospatial information. (http://www.nconemap.com/)

Centralized Data Model Examples

CaSIL- an active online repository of California geospatial data. CaSIL provides free access to geospatial data and metadata for the State of California, with special emphasis on natural resources. Most data in CaSIL are collected through partnerships with individual and institutional data providers.

(http://gis.ca.gov/data.epl)

Data Distribution Challenges

Independent of the distribution model best suited to California the fundamental challenges identified by the Regional Collaboratives still hold true:

- Privacy
- Security
- Accuracy
- Completeness
- MOUs or other distribution authorization

Data Recommendations

DR1: Further investigate the federated vs centralized data model. Is one model correct for all framework data themes?

DR2: Develop a statewide data standard as a guide for all future framework data builds.

DR3: CGIA to collect/ review/ refine/ and distribute best practices on data sharing to regional collaboratives.

DR4: CGC to address within the existing CaSIL framework the availability and promote the use of this central repository for geospatial framework data discovery and download.

7.3 Finance

7.3.1. Funding Sustainability

Regional feedback highlighted the strong need for sustainable funding. The State should develop a funding mechanism that would ensure regular funds are available to Regional Collaboratives through an equitable process. By instilling confidence that resources will are available, tasks can move forward and build upon the work that has already been done.

7.3.2. Potential Grants

The State of California must apply for a CAP grant on a yearly basis. This will ensure that work moves forward and the CA-SDI becomes a reality. It is important to have a preset schedule, with goals and objectives, for the implementation of the CA-SDI. This schedule will be developed in the third phase of the CA Strategic Plan.

7.3.3. Budget Plan

The budget plan will be a focus of the third phase of the CA Strategic Plan. At this time Regional Collaboratives are not in a position to provide feedback on a state budget for the implementation of the CA-SDI.

Finance Recommendations:

FR1: Several Collaboratives have established funding mechanisms or organized themselves as a 501(c)4. CGIA to guide non-501(c)4 collaboratives on how to enable to request and administer grant funds.

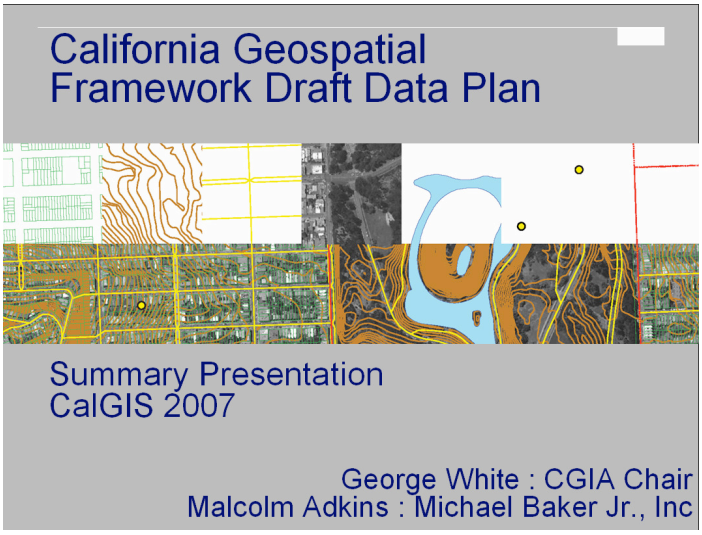
FR2: Regional framework data funding is limited and not sustainable. Everyone wants the data however funding is frequently drive to municipal government. We could lobby for funds however there are government employee restrictions. CGIA to continue with Financial Sustainability education session in collaboration with URISA chapters throughout California

7.4 Marketing / Awareness / Promotion

Previous work, ongoing efforts, and the need for a Statewide Data Infrastructure should be the focus of future marketing efforts. The GIS community must take advantage of events like "GIS Day" to publicize these needs to legislators.

The State of California has produced several reports relating to a CA-SDI. Future efforts should build upon work that has already been accomplished. It is important that these publications remain in the public's view. Outreach and marketing efforts should highlight previous works to ensure that the public is aware and sees the benefits of these efforts.

In September 2006, CGIA and Michael Baker Jr., Inc. prepared the "California Geospatial Framework Draft Data Report". This Plan, funded by a CAP grant and USGS funds, prioritized seven core and eleven supplemental framework data sets following a series of regional workshops and outreach. The results of the report are very telling, and should continue to be referenced throughout the development of a statewide strategic plan.



In addition to publicizing GIS and its capabilities, the CGC and CGIA should promote awareness of their goals, functions, and services. Outreach through resources such as the

websites and newsletters will improve communication statewide. CGIA regularly emails news flashes that should also serve as a marketing mechanism. These entities should focus their efforts and future tasks should be prioritized to ensure that the CA-SDI remain the focus of ongoing activities.

Marketing / Awareness / Promotion Recommendations:

MR1: There is not enough communication between the producers of geospatial solutions and legislators, executives, and management at the city, county, regional, and state levels. Take the current June 2008 GIS Executive Event content to Regional Management in 2008.

Appendices

Appendix A: Pre-Workshop Survey

Appendix B: Workshop Reports

Appendix C: Post-Workshop Web Forum

http://www.nsgic.org/hottopics/strategic_business_plans.cfm